

S/081/61/000/013/018/028  
B110/B205

AUTHORS: Vaysberg, K. M., Zizin, V. G.

TITLE: Spectrographic determination of vanadium and nickel in petroleum products

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 13, 1961, 529, abstract 13M324 (Tr. Bashkirsk. n.-i. in-ta po pererabotke nefi, 1960, vyp. 4, 180 - 185)

TEXT: The weighed portion of the petroleum product was incinerated by the method of dry incineration, and the ash was dissolved in HCl. The acid was evaporated, the chlorides were dissolved in water, and the solution was boiled down to the volume required. In the solution obtained, the content of V and Ni was determined with an ~~ISP~~-28 (ISP-28) spectrograph. The 0.02 mm wide slits were illuminated with a three-lens system, and the electrodes were projected onto the intermediate condenser. The spectrum was excited with a condensed spark obtained from an ~~MT~~-3 (IG-3) generator. Titanium was used as a reference element. The results of the spectrum analysis were compared with those of the chemical and

Card 1/2

S/081/61/000/013/018/028  
B110/B205

Spectrographic determination...

colorimetric analyses. The comparison showed that the accuracy of  
analysis is sufficient for practical purposes. [Abstracter's note:  
Complete translation.]

Card 2/2

SHABALIN, I.I.; KRUGLOV, E.A.; VAYSBERG, K.M.

Spectral determination of naphthalene and its derivatives in gas oil  
from catalytic cracking. Khim.i tekhn. i masel 7 no.11:25-28 N '62.  
(MIRA 15:12)

(Petroleum products)

(Naphthalene—Spectra)

KULIAKOV, V.N.; VARFOLOMEYEV, D.F.; BONDARENKO, M.F.; KOTOVA, V.N.;  
AKHMETOV, I.G.; KOLYCHEV, V.M.; NOSAL', G.I.; KIVA, V.N.;  
PANKRATOVA, M.F.; KRUGLOV, E.A.; SHMELEV, A.S.; SHABALIN, I.I.;  
SHIRMUKHMETOV, O.A.; ISYANOV, I.Ya.; RATOVSKEYA, A.A.;  
VAYSBERG, K.M.

Technology of the production of naphthalene from the refining  
products of eastern oils. Nefteper. i neftekhim. no. 4:30-33  
'64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy institut neftekhimicheskikh  
proizvodstv i ordena Lenina Ufimskiy neftepererabatyvayushchiy  
zavod.

VAYSEBERG, K.M.

Answer to B.M.Pats' review. Koks i khim. no.3:60-61 '64.  
(MIRA 17:4)

KRUGLOV, E.A.; VAYSBERG, K.M.; ABRAMOVICH, Z.I.

Investigating the individual composition of the synthetic  
fatty acids of petroleum paraffins. Khim. i tekhn. topl. i  
masel 9 no.5:36-38 5 My'64 (MIRA 17:7)

1. Nauchno-issledovatel'skiy institut neftekhimicheskikh  
proizvodstv.

VAYSBERG, K.M.; KRUGLOV, E.A.; KHABIBULLIN, M.F.; SHABALIN, I.I.

Using the gas-liquid chromatography method for studying the various  
types of naphthalene. Koks i khim. no.3:44-47 '63. (MIRA 16:3)  
(Naphthalene) (Gas chromatography)

VAYSBERG, K.M.; SHABALIN, I.I.; KOSILOV, Z.A.; SHMELEVA, M.A.; IETROVA, L.P.

Using gas chromatography and molecular spectroscopy in the  
quantitative analysis of naphthalene hydrocarbons  $C_{10} - C_{14}$ .

Khim. i tekhn. topl. i masel 10 no.9:53-57 S '65. (MIRA 18:9)

1. Nauchno-issledovatel'skiy institut neftekhimicheskikh proizvodstv.



PAVLOVA, Yu.N.; VAYSBERG, L.A.

Review of the book "Problems of anesthesiology and surgery  
in pulmonary diseases." Probl. tub. 41 no.5:86-88 '63.  
(MIRA 17:1)

VAYSBERG, L. A.; ROGACHIKOVA, T. A.

Anesthesia in surgery for laryngeal cancer. Vest. otorin. no.4:  
36-39 '61. (MIRA 15:2)

1. Iz Moskovskoy gorodskoy onkologicheskoy bol'nitsy No. 62  
(glavnyy khirurg-onkolog - prof. L. M. Nisnevich)

(LARYNX—CANCER) (ANESTHESIA)

SAVONICHEVA, I.P., kand. med. nauk; VAYSBERG, L.A.

Experience in the use of anesthesia with separate intubation of the main bronchi in the surgical treatment of pulmonary tuberculosis. Khirurgiya 40 no.3:98-102 Mr '64.

(MIRA 17:9)

1. Nauchno-issledovatel'skiy institut tuberkuleza (dir.- kand. med. nauk T.P. Mochalova) Ministerstva zdravookhraneniya RSFSR, Moskva.

SAVONICHEVA, I.P., kand. med. nauk; VAYSBERG, L.A.

General anesthesia in surgery for pulmonary tuberculosis.  
Prob. tub. no.1:36-42 '65. (MIRA 13:12)

1. Nauchno-issledovatel'skiy institut tuberkuleza (dir.- kand. med. nauk G.P. Mochalova, zamestitel' direktor po nauchnoy chasti - prof. D.D. Aseyev) Ministerstva zdravookhraneniya RSFSR, Moskva.

ACCESSION NR AM4021934

BOOK EXPLOITATION

S/

Vaysberg, Leonid Emmanuilovich

Control and organization of production in metallurgical plants (Upravleniye i organizatsiya proizvodstva na metallurgicheskoy zavode), Moscow, Metallurgizdat, 1963, 383 p. illus., biblio. Errata slip inserted. 3,650 copies printed.

TOPIC TAGS: industrial engineering, metallurgical plant, planning, automation, metallurgical plant administration

PURPOSE AND COVERAGE: The book considers the problems of production organization, the planning and administration of a modern metallurgical plant. The basic directions of technical progress in ferrous metallurgy, in the development of the modern metallurgical plant (combine), are pointed out. A great deal of attention is given to the problems of organizing work on the basis of combined graphs to assure progressive technical-economic indicators of shops and plants. Special chapters are devoted to the problems of the use and maintenance of equipment, power sources, and material-technical supply of a metallurgical plant. The book is intended for engineers and technicians in ferrous metallurgy and can be useful to students in advanced courses of metallurgical higher educational institutions and departments.

~~Card 1/3~~

VAYSBERG, L.O.

Photoelectric recording of infrared auroral spectra. Izv. AN  
SSSR. Ser. geofiz. no.1:166-167 Ja '61. (MIRA 14:1)  
(Auroras—Spectra) (Spectrum, Infrared)

VAYSBERG, M. Ya.

"Evaluation of Justification and Determination of the Effectiveness of Methods  
of Short-Term Hydrological Forecasts," *Meteorologiya i Gidrologiya*, Issue No. 1,  
1949.

U-1442, 28 Aug 51

VAYSBERG, N. (Sverdlovsk); VESOLOV, N. (Sverdlovsk); ZINOV'YEV, Yu. (Sverdlovsk);  
LEONOV, N. (Sverdlovsk).

("The economics of the socialist chemical industry." N.N. Kalmykov, S.A.  
Vaishein. Reviewed by N. Vaisberg and others) Vop. ekon. no. 7:150-153 J1  
'56. (Chemical industries) (MLRA 9:9)  
(Kalmykov, N.N.)  
(Vaishein, S.A.)



SHIMANSKAYA, R.I.; PLYUSNIN, V.G.; VAYSBERG, N.S.

Use of pyrolysis tar from wastes of the synthetic alcohol  
manufacture. Khim.i tekhn.topl.i masel 7 no.9:34-37 S '62.  
(MIRA 15:8)

1. Ural'skiy filial AN SSSR.  
(Petroleum products)

ZINOV'YEV, Yu.N., kand.ekonom.nauk; VAYSBERG, H.S., kand. ekon. nauk

Raise the level of the training of chemical engineers  
in economics. Zhar.VGIIO 10 no.4:451-452 '65.

(MIRA 18:11)

VAYSBERG, O.L.

KURT, V.G.; VAYSBERG, O.L.

Starting regular observations of infrared coronal lines. Astron.  
tsirk, no.174:11-12 N '56. (MLRA 10:3)

1. Gosudarstvennyy asteonomicheskii institut imeni P.K.Shternberga  
i Gornaya asteonomicheskaya stantsiya Glavnoy astronomicheskoy  
(Pulkovskoy) observatoriya.  
(Sun--Corona) (Spectrum, Solar)

3(1)

AUTHOR:

Vaysberg, O.L.

SOV/33-35-6-13/18

TITLE:

Light Absorption in a Mixture of Negative Ions

$O_2^-$ ,  $H^-$  and  $O^-$

PERIODICAL:

Astronomicheskii zhurnal, 1958, Vol 35, Nr 6, pp 931-932 (USSR)

ABSTRACT:

The author gives the distribution of light absorption in several mixtures of negative ions. The results are represented in 3 figures. It turns out that the observed interstellar light absorption can in the best way be explained by assuming negative ions of molecular oxygen with a small admixture of negative ions of atomic hydrogen.

There are 3 figures and 5 references, 1 of which is Soviet, 1 American, 1 Canadian, and 2 are English.

ASSOCIATION:

Institut fiziki atmosfery Akademii nauk SSSR (Institute of Atmospheric Physics of the AS USSR)

SUBMITTED:

May 13, 1958

Card 1/1

VAYSBERG, O.I.

First observations of auroral spectra with a photoelectric spectrometer.  
Izv. AN SSSR. Ser. geofiz. no.8:1277-1278 Ag '60. (MIRA 13:8)

1. Akademiya nauk SSSR, Institut fiziki atmosfery.  
(Auroras—Spectra)

86213

3.1810

S/049/60/000/008/015/015  
E201/E191

AUTHOR: Vaysberg, O.L.

TITLE: First Observations of the Auroral Spectra Obtained with a Photoelectric Spectrometer

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya, 1960, No. 8, pp.1277-1278

TEXT: Beginning in November 1959 auroral spectra were recorded at the "Loparskaya" station with a large-aperture photoelectric spectrometer. The optical parts of the spectrometer are shown schematically in Fig.1. A lens 1 projected the image of the aurora onto an entry slit 2. A rotatable mirror 3 and a collimator 4 directed the light onto a diffraction grating 5. The ruled area of the grating was 150 x 140 mm and it had 600 lines/mm; it concentrated light in the second order. A spherical mirror 6 produced a monochromatic image of the entry slit in the plane of the exit slit 7. A rotatable mirror 9 allowed the use of a second slit 10. Condenser lenses 8 and 11 projected light onto photomultiplier cathodes (not shown in Fig.1). Light filters were placed in front of the entry slit to select the required

Card 1/3

86213

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E201/E191

First Observations of the Auroral Spectra Obtained with a Photoelectric Spectrometer

wavelengths. The diffraction grating was rotated with an asynchronous motor; the scanning rate could be varied from 0.26 to 500 Å/sec. Photomultipliers were of  $\Phi 3Y-19M$  (FEU-19M) type. The sensitivity of the apparatus was checked by placing a phosphor loaded with radioactive carbon in front of the entry slit. An amplifier was connected to the photomultiplier and the amplified signal was recorded with a potentiometer  $\Phi 117-09$  (EPP-09). Fig.2 shows a spectrum of a corona-type aurora of magnitude III. The spectrum of Fig.2 shows the second positive system of  $N_2$ , the negative system of  $N_2^+$ , the first negative system of  $O_2^+$ , the O I line at 5577 Å, other O I and O II lines, as well as N I and N II lines. It was found that hydrogen emission was usually strong in diffuse uniform auroral arcs observed to the South of active aurorae or other arcs. Hydrogen emission was not observed in the absence of visible aurorae or the band of  $N_2^+$  at 4709 Å (Fig.3).

Card 2/3

8621 3.

S/049/60/000/008/015/015  
E201/E191

First Observations of the Auroral Spectra Obtained with a  
Photoelectric Spectrometer

Acknowledgements are made to V.I. Krasovskiy who directed this  
work and advised the author, to Yu.I. Gal'perin and N.V.  
Dzhordzhio for their advice, and to V.G. Babich for help in  
experiments.

There are 3 figures and 3 references: 2 Soviet and 1 English.

ASSOCIATION: Akademiya nauk SSSR, Institut fiziki atmosfery  
(Physics of the Atmosphere Institute, AS USSR)

SUBMITTED: March 10, 1960

Card 3/3



VAYSBERG, O.L.

Possible mechanism of the retardation of the earth's rotation.  
Astron.zhur. 38 no.3:545-549 My-Je '61. (MIRA 14:6)

1. Institut fiziki atmosfery AN SSSR.  
(Earth--Rotation)

43440

S/169/62/000/011/069/077  
D228/D307

3.1810

AUTHOR: Vaysberg, O.L.

TITLE: Spectro-electrophotometry of auroral hydrogen emission

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 11, 1962, 22-23, abstract 11G148 (In collection: Polyarn. siyaniya i svecheniye nochn. neba, no. 8, M., AN SSSR, 1962, 36-42 (summary in Eng.))

TEXT: Spectrophotometric H $\alpha$ -line observations carried out at Loparskaya ( $\phi = 63^{\circ}06'$ ,  $\lambda = 126^{\circ}07'$ ) are described. Recording was conducted in several selected sky areas in order to obtain the sky hydrogen-glow distribution during an aurora, and also to determine the glow region movement. Recording was also carried out of auroral forms in the background next to these areas. Since various emissions are registered at a different time in spectral scanning, recordings were doubled for control purposes. Observations showed that hydrogen emission is, as a rule, concentrated in one, mostly southerly.

Card 1/3

Spectro-electrophotometry ...

S/169/62/000/011/069/077  
D228/D307

homogeneous arc. In the initial stage of an aurora this arc appeared to the south of zenith and moved southwards, when the  $H\alpha$ -line intensity then increased. The intensity of the band  $(0.2) H_2^+ \lambda 4709 \text{ \AA}$  grew simultaneously. The arc usually reached  $Z \approx 75-80^\circ$ . Then a second (and sometimes a third) arc appeared and also moved southwards; no  $H\beta$  is detectable in it. 10-20 minutes after the visible approach of the arcs a group of rays passed along the upper arc from west to east, then bright active forms (auroral splashes) appeared.  $H\beta$  sometimes weakened after a splash and moved northwards. Apart from southerly homogeneous arcs, no intensification of the  $H\beta$ -line as compared with background was detected in any auroral forms. A slow diminution of brightness with altitude was noted in a 'hydrogen arc'. The appearance of arcs with hydrogen emission only at large zenith distances and the failure of attempts to record such arcs at the zenith, together with the high angular spread and the slow brightness diminution in a 'hydrogen arc', lead to the supposition that a 'hydrogen arc' stems from a projection effect or from the Van Rein effect. The visible hydrogen field section is governed by the superposition of the altitudinal and the latitudinal glow dis-

Card 2/3

Spectro-electrophotometry ...

S/169/62/000/011/069/077  
D228/D307

tribution. The  $H\beta$  -line was not once observed in the absence of visible glow, nor when the glow was sometimes very weak. Cases of diffuse hydrogen-emission glow were noted, too, over much of the sky to the north of zenith. The ratio of  $I_{H\beta}/I_{4709}$  may reach 1.5

in hydrogen fields and is much less than 1 in all auroral forms. No detailed relation between the appearance of hydrogen emission and the variation of the magnetic field's H-component was detected. Hydrogen emission was absent on magnetically quiet days; bright hydrogen fields appear on nights with magnetic storms and intense auroras. Negative coils are connected with the southwards movement of the hydrogen field.

[Abstracter's note: Complete translation.]

Card 3/3

43441

S/169/62/000/011/070/077  
D228/D307

3,1810

AUTHOR: Vaysberg, O.L.

TITLE: Spectro-electrophotometry of  $N_2$ ,  $N_2^+$ ,  $OI$ , and  $NII$  emission in auroras

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 11, 1962, 23, abstract 11G149 (In collection: Polyarn. siyaniya i svecheniye nochn. neba, no. 8, M., AN SSSR, 1962, 43-49 (summary in Eng.))

TEXT: Results are given for the photoelectric recording of several auroral spectra in the regions  $\lambda$  3100-5600 Å and  $\lambda$  6000-9500 Å. Besides the molecular band systems, the equipment's sensitivity allowed seven atomic lines to be recorded:  $\lambda$  5577 Å [OI], the doublet  $\lambda$  6300-6364 Å [OI],  $\lambda$  8446 Å [OI],  $\lambda$  5200 Å [NI],  $\lambda$  5003 Å [NII], and the hydrogen lines  $H_\alpha$  and  $H_\beta$ . In auroral spectra it is hard to detect a sharp functional relation between any two emissions, for example the height dependence. The instrument's sighting beam usually intersects not one auroral form but a whole series of them --

Card 1/4

Spectro-electrophotometry ...

S/169/62/000/011/070/077  
D228/D307

(luminant layers at different heights). Therefore it is necessary to seek a tendency rather than a rigid relation. Observations showed that within the method's precision there is a constant intensity ratio between all nitrogen molecular band systems and the green line. No systematic difference in the ratio  $I_{\text{INGN}_2^+} + I_{\lambda 5577} / I_{\text{green}}$  in the upper and lower parts of radiant forms was detected. The second positive  $\text{N}_2$  system correlates well with the first negative  $\text{N}_2^+$  system. The first positive  $\text{N}_2$  system is more intense if the auroral brightness is low. The intensity of the infrared Meynel  $\text{N}_2^+$  system correlates well with the green line. In hydrogen fields the ratio of the intensity of bands of the Meynel  $\text{N}_2^+$  system to the green line is 1.8 times less than in auroral forms with no hydrogen emission. It was established that in the laboratory proton-beam excitation of nitrogen molecules the Meynel system is excited 10 times less effectively relative to the first positive  $\text{N}_2$  system than in electron bombardment. Evidently, much of the glow in hydrogen fields is induced by encroaching proton flux. According to observational data no differences were also found in the relative intensities of molecular band systems and the green line in radiant and

Card 2/4

Spectro-electrophotometry ...

S/169/62/000/011/070/077  
D228/D307

homogeneous forms of the same brightness. The resolved oxygen line  $\lambda$  8446 Å behaves in auroras like the forbidden line  $\lambda$  6300 Å (its intensity lags behind the growth in the intensity of the green line, which can be taken as a measure of auroral brightness). The non-linear dependence of the intensity of  $\lambda$  8446 Å on  $\lambda$  5577 Å and the different nature of its behavior in individual cases testify to the existence of two excitation mechanisms for the line  $\lambda$  8446 Å. It may be supposed that in bright low auroras  $\lambda$  8446 Å is excited by electron impact with a quite definite  $I_{8446} \text{ Å} / I_{5577} \text{ Å}$  intensity ratio. An additional secondary mechanism must act at great heights. The line  $\lambda$  8446 Å behaves differently in a hydrogen field. Here we see an almost linear relation between the intensities of the lines  $\lambda$  8446 Å and  $\lambda$  5577 Å. This also speaks in favor of the fact that so-called "hydrogen arcs" are an effect of geometric projection. On the approach of a hydrogen field towards the horizon the instrument's sighting beam passes a very thick luminant layer, the brightness of emissions grows, and their ratio remains unchanged. This is actually observed for all emissions apart from  $\lambda$  6300 Å, whose intensity may also increase sometimes in hydrogen fields. There are

Card 3/4

Spectro-electrophotometry ...

S/169/62/000/011/070/077  
D228/D307

grounds for supposing that electron excitation also exists in hydrogen fields. The line  $\lambda 5003 \text{ \AA}$  [NII] is on the average relatively more intense in hydrogen fields as compared with other auroral forms. ✓  
[Abstractor's note: Complete translation]

Card 4/4



h5202

3/269/63/000/001/023/032

A001/A101

5.10.12  
AUTHOR: Vaysberg, O. L.

TITLE: Spectroelectrophotometry of hydrogen emission in auroras

PERIODICAL: Referativnyy zhurnal, Astronomiya, no. 1, 1963, 67,  
abstract 1.51.458 (In collection: "Polyarn. siyaniya i svecheniye  
noch. neba. no. 8", M., AN SSSR, 1962, 36 - 42, English summary)

TEXT: Observations of the  $H\beta$  line were conducted at Loparskaya in 1959 -  
- 1960. It has been established that its emission is not related to auroral shape.  
The  $H\beta$  emission is concentrated in the hydrogen field extended along the geomag-  
netic parallel. The field extension in latitude amounts to 150 - 1000 km. With  
aurora development, the field is shifted southward. Owing to the effect of Van  
Rine, auroras have the shape of a uniform arc in observations at large zenith  
distances. Appearance of a hydrogen field precedes a bright aurora.  $H\beta$  profiles  
agree with profiles obtained by other authors. No variations were detected in  
the  $H\beta$  profile. There are 14 references.

T. Mulyarchik

[Abstracter's note: Complete translation]

Card 1/1

145203  
8/269/63/000/001/021/032  
A001/A101

AUTHOR: Vaysberg, O. L.

TITLE: The spectroelectrophotometry of emissions  $N_2$ ,  $N_2^+$ , O I and N II in auroras

PERIODICAL: Referativnyy zhurnal, Astronomiya, no. 1, 1963, 67 - 68.  
abstract 1.51.459 (In collection: "Polyarn, siyaniya i svecheniye  
nochn. neba, no. 8", M., AN SSSR, 1962, 43 - 49, English summary)

TEXT: In 1959 - 1960 spectra of auroras in the regions  $\lambda$  3100 - 5600 and  $\lambda$  6000 - 9500 were photoelectrically recorded at Loparskaya. A number of emissions was studied in the mentioned regions. No large difference in behavior of these emissions in different forms of auroras was discovered. The Meinel system  $N_2^+$  was an exception. In comparison with other emissions in hydrogen fields it was 1.8 times weaker than in other forms of auroras. The intensity ratio  $\lambda$  6300/ $\lambda$  5577 dropped with the growth of intensity of  $\lambda$  5577. The same regularity was observed also in  $\lambda$  8446. Intensities of bands  $2PGN_2$  and  $1NON_2^+$  are well correlated with the green line. The  $1PGN_2$  bands in weak auroras are excited relatively stronger.

Card 1/2

The spectrophotometry of...

8/269/63/000/001/024/032  
A001/A101

There are 7 references.

T. Mulyarchik

[Abstracter's note: Complete translation]

Card 2/2

L 1547-66 FSS-2/FWT(1)/FS(V)-3 TT/GS/CW

ACCESSION NR: AT5023583

UR/0000/65/000/000/0203/0235

AUTHOR: Vaysberg, O. L.; Shuyskaya, P. K.

TITLE: Anomaly in the pitch distribution of electrons

SOURCE: Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva, Moscow, 1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy konferentsii. Moscow, Izd-vo Nauka, 1965, 203-205

TOPIC TAGS: electron distribution, atmospheric interaction, upper atmosphere, space flight, space probe

ABSTRACT: Pitch distributions of electrons were obtained by means of charged-particle indicators installed on board the Kosmos-5 satellite. Wide pitch distributions were observed in the range of longitudes to the west of the South Atlantic anomaly. Narrowing of pitch distributions occurred at  $\lambda \approx 0^\circ$  up to  $\lambda \approx 20^\circ$ , with greatest narrowing in the range of longitudes from  $+20$  to  $+60^\circ$ . The narrowing of the pitch distributions occurred at the exit from the anomaly, and the corresponding decrease in intensities observed in this region took place at heights  $>600$  km, which makes it impossible to explain the effect only by scattering in the atmosphere. The effect was attributed at least partially to the presence of electric fields in the mag-

Card 1/2

L 1547-65

ACCESSION NR: AT5023583

netosphere. Electromotive forces due to high conductivity along the geomagnetic force lines should penetrate the region of capture and distort the drift of particles of not very high energy. The systematic change of the width of pitch distribution of electrons with an energy of  $\sim 100$  kev could be caused by an electric field with an intensity of the order of  $10^{-5}$  v.cm $^{-1}$ . A change in the energy of these electrons would also occur. Orig. art. has: 2 figures and 1 table. [JA]

ASSOCIATION: none

SUBMITTED: 02Sep65

ENCL: 00

SUB CODE: ES, NP

NO REF SOV: 004

OTHER: 007

ATD PRESS: 4094

Card 2/2

L 3107-66 FSS-2/EWT(1)/ES(v)-3/FCC/ EWA(d)/EWA(h) TT/GS/GW  
 UR/0000/65/000/000/0406/0417  
 ACCESSION NR: AT5023611

AUTHOR: Bolyunova, A. D.; Vaysberg, O. L.; Gal'perin, Yu. I.; Potapov, B. P.;  
Temnyy, V. V.; Shuyskaya, F. K. 22  
 67  
 371

TITLE: Preliminary results of particle studies using the "Elektron-1" satellite

SOURCE: Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva. Moscow,  
1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy konferentsii.  
Moscow, Izd-vo Nauka, 1965, 406-417

TOPIC TAGS: particle physics, artificial earth satellite, satellite data analysis,  
 electron, proton

ABSTRACT: The authors analyze data from the "Elektron-1" to determine the distribu-  
 tion of radiation in the geomagnetic trap along the orbit of the satellite in Janu-  
 ary-March 1964. At lower latitudes ( $L < 2$ ) close to the equator, the dominating  
 particle flux is from electrons of natural origin with energies of 20-200 kev and an  
 intensity of up to  $2 \cdot 10^9$  particles.cm<sup>-2</sup>.sec<sup>-1</sup>, and from electrons artificially in-  
 jected by the high-altitude explosion of 9 July 1962 with energies of several Mev  
 and a flux of up to  $2 \cdot 10^8$  particles.cm<sup>-2</sup>.sec<sup>-1</sup>. There are also trapped protons in

Card 1/2

L 3107-66

ACCESSION NR: AT5023611

this same region with energies of tens and hundreds of Mev and an intensity of up to  $\sim 5 \cdot 10^4$  particles  $\cdot \text{cm}^{-2} \cdot \text{sec}^{-1}$  ( $E > 50$  Mev). At middle latitudes ( $2 < L < 4$ ) there is a sharp increase in the flux of soft protons with energies of a few hundred kev to intensities of no less than  $\sim 10^8$  particles  $\cdot \text{cm}^{-2} \cdot \text{sec}^{-1}$  at latitudes of  $30-50^\circ$  and apparently to no less than  $\sim 3 \cdot 10^8$  close to the plane of the equator at  $L \sim 3$ . Their spectrum is softer at higher latitudes. Both protons and electrons are observed at higher latitudes, the low energy electron component ( $E > 20$  kev) being extremely variable, especially during increased geomagnetic activity. The boundary of the capture zone in the geomagnetic field during magnetic calm matches the outlines of the "momentary" polar aurora zone which reflects the diurnal asymmetry of the magnetosphere. "In conclusion, we are sincerely grateful to V. I. Krasovskiy, T. M. Mulyarchik, N. V. Dzhordzhio, M. L. Bragin, G. N. Zlotin, I. N. Kiknadze, I. D. Dmitriyeva, T. N. Zaglyadinova, A. K. Nazarova and G. A. Bordoyskiy for great assistance in the work and for useful discussions." Orig. art. has: 8 figures and 1 table. [14]

ASSOCIATION: none

SUBMITTED: 02Sep65

NO REF SOV: 009  
Card 2/2

ENCL: 00

OTHER: 008

SUB CODE: ES, NP

ATD PRESS: 4105

L 8118-66 FSS-2/EWT(1)/FS(v)-3/FCC/EWA(d)/EWA(h) TT/GW

ACC NR: AP6000306

SOURCE CODE: UR/0293/65/003/006/0890/09x2

AUTHOR: Vaysberg, O. L.; Shuyakaya, P. K.

ORG: none

TITLE: Distribution of electrons with  $E > 40$  kev by pitch angles in the inner belt, based on data of "Cosmos-5"

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 6, 1965, 890-902

TOPIC TAGS: satellite data analysis, satellite orientation, radiation belt, satellite stability, electron distribution, electron energy level

ABSTRACT: In June 1962 observers succeeded in obtaining data over several ~~drift~~ <sup>12</sup> revolutions of "Cosmos 5" on the distribution of directed intensity of electrons with energy  $> 40$  kev by pitch angles at altitudes of 1,000—1,600 km. Distributions were plotted of the directed intensity in mirror points on natural geomagnetic coordinates B and L while preserving the magnetic moment. The width of pitch distributions and the corresponding B and L diagrams show the dependence on longitude (or on the local time of the observation point). On the average, the directed intensities computed by pitch distributions are in agreement with the measurements of intensities at an angle of  $90^\circ$  to the force line, which were made during other orbitings through the same drift envelope at longitudes close together. In Pacific longitudes, the directed intensity

Card 1/2

UDC: 550.388



E 8118-66

ACC NR: AP6000306

on the drift trajectories running in the region of the South-Atlantic anomaly at an altitude of 250 km reaches  $2 \cdot 10^6$  electron/cm<sup>2</sup>·sec·strad for  $L = 1.5$ . The width of the pitch distribution remains large in the zone of the South-Atlantic anomaly and thereafter. At longitudes  $> 0^\circ$  during the daytime the pitch distributions contract, and the intensity along the drift trajectories decreases correspondingly. This phenomenon, evidently, cannot be entirely the result of Coulomb scattering. The variations observed in pitch distributions and intensities, their changes in individual orbiting revolutions, and the systematic decrease of pitch distributions and intensity at longitudes  $> 0^\circ$  are a weighty argument in support of the existence in the magnetosphere of electric fields of ionospheric origin with a strength of up to  $10^{-4} - 10^{-5}$  v/cm. At present, additional analysis of the available material is being conducted in order to evaluate the effect of diurnal and longitudinal factors on the pitch distribution of trapped particles. There are reasons to assume that the measurement of the variations of intensity and pitch angles of soft electrons, which play an important role in the excitation of auroras and in the energy balance of the upper atmosphere, may serve also as an effective means for the study of electric fields and circulation in the upper atmosphere and magnetosphere of the Earth. Orig. art. has: 5 formulas and 9 figures. [JJ]

SUB CODE: AA, SV/ SUBM DATE: 27Feb65/ ORIG REF: 008/ OTH REF: 013/ ATD PRESS: 4145

Card 2/2

L 14499-66 EWT(1)/EWT(m)/FCC/EMP(t)/EMP(b) IJP(c) JD/GW  
ACC NR: AP6006668 SOURCE CODE: UR/0203/65/006/001/0135/0137

AUTHOR: Vaysberg, O. L.

ORG: Institute of Physics of the Atmosphere, AN SSSR (Institut fiziki atmosfery AN SSSR)

TITLE: On the pitch distribution of protons in auroras 17

SOURCE: Geomagnetizm i aeronomiya, v. 6, no. 1, 1966, 135-137

TOPIC TAGS: proton, aurora, angular distribution, radiation intensity, hydrogen emission, geomagnetic force line

ABSTRACT: It is assumed that some protons penetrate into auroras at low velocities. A detailed analysis of line profiles proved that at velocities of some hundreds of km/sec, the differential energy spectrum of particles changes according to the law  $E_0^{-1.8}$ , where  $E_0$  is the initial energy of protons. The angular distribution of protons depends upon the profile accepted. The variability of results obtained using different profiles indicates that the proton distribution in auroras cannot be studied by the methods used for studying hydrogen. Formulas are given for determining dependence of radiation intensity upon wavelength or

UDC: 550.388.8

Card 1/2

L 14499-66

ACC NR: AP6006668

Doppler velocity. The radiation intensity was taken from auroral spectra obtained at Loparskaya station. Hydrogen emission was obtained from an auroral belt 100—1000 km wide along a geomagnetic parallel. Integrating the formula of Doppler velocity, the number of hydrogen atoms which were decelerated in the atmosphere was found. Assuming similar deceleration for protons, the differential energy spectrum of penetrating protons can be determined. The spectrum determined by integration differs from that based on the independence of angular distribution of the energy spectrum. The capture of protons by geomagnetic force lines is possible when the proton direction of motion coincides with the force lines. Orig. art. has: 2 figures and 4 formulas. [EG]

SUB CODE: 04/ SUBM DATE: 07May65/ ORIG REF: 005/ OTH REF: 012/ ATD PRESS:

4199

CC  
Card 2/2

L 16987-66 EWT(1)/FCC GW

ACC NR: AP6001540

(N)

SOURCE CODE: UR/0384/65/000/006/0024/0030

AUTHOR: Vaysberg, O. L. (Candidate of physico-mathematical sciences)

32

ORG: none

E

TITLE: The aurora

SOURCE: Zemlya i Vselennaya, no. 6, 1965, 24-30

TOPIC TAGS: aurora, magnetic storm, sunspot, geomagnetic field, ionosphere

ABSTRACT: This is a popular report on the occurrence of the aurora, its variety, its beauty and awesomeness, and the attention now being devoted to it, especially in regard to photographic records. Current knowledge of the aurora is reviewed: its association with magnetic storms and its possible relation to sunspots; the theory that the aurora is caused by a stream of charged particles from the sun following a complex path through the geomagnetic field; the occurrence of most auroral displays at heights of 95--120 km (though some have been observed at 80 km) with rays extending to 200-300 km and even, rarely, to 1000 km; the character of the auroral spectrum, consisting of bands of molecular nitrogen and oxygen and lines of atomic nitrogen and oxygen, indicating that the aurora is not due to

Card 1/2

2

L 16987-66

ACC NR: AP6001540

electrical discharge in the atmosphere; lines of incandescent hydrogen and the red shift of these lines; and invasion of the atmosphere by low-energy electrons (about 10 kev), raising the temperature. The types of auroral displays are examined briefly. Those due to low-energy electrons as well as proton-generated types are dominant in polar regions. The "red arcs" of the middle and low latitudes are due to excitation luminescence of the electrical field in the ionosphere or to photochemical excitation. The author points out that we still have much to learn about this phenomenon. Orig. art. has: 9 figures.

SUB CODE: 04/ SUBM DATE: none

Card 2/2 *mgs*

1ST AND 2ND ORDERS																										3RD AND 4TH ORDERS																									
PROCESSES AND PROPERTIES INDEX																										METALLURGICAL LITERATURE CLASSIFICATION																									
<p>2599. RATIONAL UTILIZATION OF COKE OVEN GAS (IN U.S.S.R.).  Kustov, BI. and Vaisberg, Or (Za Ekon. Topliva (Fuel Econ.),  May 1950, (5), 5-9). Percentages of output used for different  purposes are tabulated 33% goes on heating coke ovens and  other internal purposes. This percentage is lower than those  ruling in U.S.A. and Germany, but should be lower still.  Coke ovens should be heated by blast furnace gas where it is  available, and where it is not there in a case for using  producer gas, which can be produced cheaply from low grade  fuel in large plants working on the fluidized bed principle.  This would free coke oven gas for use in synthetic processes  and as fuel. The development of long distance piping of coke  oven gas will improve the economy of supply to the metallurgical  industry and to towns for domestic use. (L)</p>																																																			

1. VAYSBERG, O. P.
2. USSR (600)
4. Coal Preparation
7. Optimum depth of concentrating Kizel coking coals. Ugol' 27, no. 12, 1952.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

"APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001859120018-6

SECRET

APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001859120018-6"



2721. PROBLEMS OF THE REFINEMENT OF COALING COALS WITH LOW TEMPERATURES  
COKE. Vatsberg, O.P. (Ugol. (Coal, Refining), 1954, 30-33). The  
and successful examples are given of the production of satisfactory  
coke (U). with volatile coal with low temperature

VAYSBERG, O.P.kandidat ekonomicheskikh nauk.

On replacing coking coal by semi-coke. Ugel' 31 no.4:30-33 Ap '56.  
(MLRA 9:7)

1.Ukrainskiy uglekhimicheskiy institut.  
(Coke)

Vaysberg, O.P.

AUTHORS: Litvinenko, M.S. (Dr. of Tech.Sc.), and Vaysberg, O.P.,  
(Cand.Economic Sc.) 68-5-11/14

TITLE: Economics of the removal of sulphur from coke oven gas on  
the Southern Coke Oven Works. (Ekonomika izvlecheniya sery  
iz koksovogo gaza na koksokhimicheskikh zavodakh yuga).

PERIODICAL: "Koks i Khimiya" (Coke and Chemistry), 1957, No.5,  
pp.47-50 (U.S.S.R.).

ABSTRACT: The extent of the application of gas cleaning on Southern  
Works during 51-56 is shown in Table 1. Methods of utilis-  
ing sulphur recovered from the gas are briefly discussed.  
It is concluded that the production of sulphuric acid which  
can be used on the spot is the most economical. Technical-  
economical indices of the production of sulphuric acid from  
pyrites and from hydrogen sulphide recovered from coke oven  
gas are compared in Table 2. Two methods of gas desulphur-  
isation are compared - arsenate-soda and vacuo-carbonate.  
The volumes of constructional work involved for the above  
two methods of desulphurisation are compared in Table 3.  
The plant operating on the vacuo-carbonate method is cheap-  
er and simpler to build. The degree of desulphurisation of  
gas attained in 1956 on various Ukrainian works is compared,  
in Table 4, and from this it is concluded that both methods

Card 1/3

Economics of the removal of sulphur from coke oven gas on the Southern Coke Oven Works. (Cont.) 68-5-11/14

are comparable in the efficiency of desulphurisation, but the arsenate method presents difficulties due to a large volume (100m<sup>3</sup>/day) of highly poisonous effluent and high soda consumption (400-500 kg/ton of sulphur). The costs of gas desulphurisation by the above two methods on various works calculated on the same basis for 1955 were as follows:

Works	Method of Cleaning	Costs per 1000 m <sup>3</sup>	
		roubles	kopeks
Zaporozsk	arsenate-soda	0	68
Zhdanov	" "	2	00
Dnepropetrovsk	" "	3	71
Makeyevsk	vacuo-soda	2	90

High cleaning costs on the Makeyevsk Works were due to high power consumption. In 1956 the works replaced soda by potash which resulted in a considerable economy (30-35%) in power, steam and water consumption. The cost of cleaning decreased from 2.90 Roubles in 1955 to 1.75 Roubles in 1956. It is concluded that from works operating gas cleaning, the installation on the Makeyevsk works is the most economical.

Card 2/3

By utilising waste heat from the coke oven works for the

Economics of the removal of sulphur from coke oven gas on the Southern Coke Oven Works. (Cont.) 68-5-11/14

regeneration of the absorbing solution, e.g., by utilising heat of ammonia liquor, as was done on the Kharkov works, a further decrease in cleaning costs can be obtained. A comparison of manpower required for cleaning gas by the above two methods (Table 5) indicates that the vacuo-carbonate method in this respect is also more economical. On the basis of the above comparisons it is recommended that the vacuo-carbonate method of desulphurisation together with the production of sulphuric acid by wet catalysis, should be widely applied in the coking industry of the U.S.S.R., while the construction of new plants based on the arsenate-soda method should be discontinued.

There are 5 tables and 3 Slavic references.

ASSOCIATION: UKhIN.

AVAILABLE:

Card 3/3

VAYSBERG, O. P.

68-12-21/25

AUTHOR: Pozin, B.M.

TITLE: On the Problem of the Economy of Purification of Coke Oven  
Gas from Hydrogen Sulphide (K voprosu ob ekonomike ochistki  
koksovogo gaza ot serovodoroda)

PERIODICAL: Koks i Khimiya, 1957, No.12, pp. 49 - 50 (USSR)

ABSTRACT: This is a criticism of the paper by M.S. Litvinenko and  
O.P. Vaysberg (Koks i Khimiya, 1957, No.5). The present author  
criticises costs calculation used in the original paper and  
concludes that the matter of economy of vacuum carbonate and  
arsenical methods of gas purification should be widely discussed  
in the journal, Koks i Khimiya, so that objective conclusions  
can be reached.

ASSOCIATION: Giprogazoochistka

AVAILABLE: Library of Congress

Card 1/1

AUTHOR: Vaysberg, O. P. 68-50-6-12/21

TITLE: On the Economy of Flotation of Coal Slurry and Dust  
(Ob ekonomike flotatsii ugol'nogo shlama i pyli)

PERIODICAL: Koks i Khimiya, 1958, Nr 6, pp 49-51 (USSR)

ABSTRACT: This is a contribution to a previous paper under the same title by P. Ye. Sekt, F. F. Teslenko, F. M. Belikov and S. A. Levin, published in Koks i Khimiya, Nr 8, 1957, p 52. The present author considers that the investigations described in the original paper are insufficient for the determination of the economical effect of flotation of all coal fines on coal washeries at coke oven works.

ASSOCIATION: UkhlII

1. Coal--Processing
2. Coal--Flotation

Card 1/1

VAYSBERG, P.

Offices of design and technology need direction and help. Prom.  
koop. no. 6:55-58 Je'55. (MLRA 8:11)

1. Nachal'nik Tekhnicheskoy i konstruktorskoy kontory Mosoblpromso-  
veta  
(Efficiency, Industrial)



VAYSBERG, S. Ye.

USSR.

5281  
ON THE DISTRIBUTION OF DEUTERIUM DURING ISOTOPE  
EXCHANGE WITH HYDROGEN. Ya. M. Varslavskii and S.  
E. Valsberg (Karpov Physico-Chemical Inst., Moscow).  
Zhur. Fiz. Khim. 29, 523-32(1955) Mar. (In Russian)  
Factors of the distribution-coefficient functions for D be-  
tween two-component systems of all combinations of  $H_2$ ,  $CH_4$ ,  
 $C_2H_6$ ,  $C_2H_2$ ,  $C_2H_4$ ,  $NH_3$ ,  $H_2O$ ,  $HF$ ,  $PH_3$ ,  $H_2S$ ,  $HCl$ ,  $AsH_3$ ,  $H_2Se$ ,  
 $HBr$ , and  $HI$  are evaluated in relation to the spectra of the  
compounds and the position in the periodic table of the com-  
ponent elements. (U.S.)

✓ 191. ISOTOPIC EXCHANGE OF NITROGEN IN SATURATED HYDROCARBONS  
Tschering, W. R. Voshell, R. E. 1961, J. Org. Chem., 26, 11, 2111-2114.

38

VAYSBERG, S. E.

USSR/ Chemistry - Physical chemistry

Card 1/2 Pub. 22 - 25/50

Authors : Varshavskiy, Ya. M., and Vaysberg, S. E.

Title : About rules governing the equilibrium distribution of deuterium during isotopic hydrogen interchange reactions

Periodical : Dok. AN SSSR 100/1, 97-100, Jan 1, 1955

Abstract : Experiments show that the maximum possible deuterium distribution coefficient should occur during isotopic hydrogen exchange between the hydride of the most heavy alkali metal and one of the non-metal compounds of the first period. The equilibrium constant of the interchange reaction depends upon the nature of the statistical deuterium distribution between the reacting molecules and upon the various degree of hetero-dynamism of the

Institution : The L. Ya. Karpov Scientific Research Phys-Chemical Institute

Presented by: Academician V. A. Kargin, July 27, 1954

Periodical : Dok. AN SSSR 100/1, 97-100, Jan 1, 1955

Card 2/2 : Pub. 22 - 25/50

Abstract : hydrogen isotopes in the molecules of both substances. It was established that the very same deuterium distribution rules pertain also to tritium as well as isotopes of other monovalent elements except that the distribution effects will be different. Five references: 4 USSR and 1 USA (1947-1954). Tables; diagram.

**"APPROVED FOR RELEASE: 08/31/2001**

**CIA-RDP86-00513R001859120018-6**

**APPROVED FOR RELEASE: 08/31/2001**

**CIA-RDP86-00513R001859120018-6"**

VAYSBERG, S. E.

AUTHORS: Varshavsky, Ya. M., and Vaysberg, S. E., (Moscow). 74-12-4/4

TITLE: Thermodynamic and Kinetic Peculiarities of the Isotope-Exchange-Reaction of Hydrogen (Termodinamicheskiye i kineticheskiye osobennosti reaktsii izotopnogo obmena vodoroda).

PERIODICAL: Uspekhi Khimii, 1957, Vol. 26, Nr 12, pp. 1434-1468 (USSR).

ABSTRACT: Deuterium is of particularly great importance especially in organic chemistry, because it makes it possible to determine the way taken by hydrogen in chemical reactions by means of marked atoms. The exchange velocity can serve as a criterion for the structure and the preparedness of reaction of various substances. The article comprises the most important research results in the field of the thermodynamics and kinetics of the isotope exchange reaction of hydrogen; in this connection also general rules governing isotope exchange reaction are derived. The following chapters are dealt with:

- I) The thermodynamics of isotope exchange.
- a) The connection between the distribution coefficient of isotopes and the equilibrium constant of the isotope exchange reaction.
- b) Methods for the statistical computation of equilibrium in isotope exchange.
- c) Rules governing the deuterium distribution in the isotope exchange.

Card 1/2

Thermodynamic and Kinetic Peculiarities of the Isotope-Exchange- 74-12-14/1  
Reaction of Hydrogen.

change of hydrogen.

- d) Experimental data concerning the distribution of the equilibrium of deuterium in isotope exchange reactions of hydrogen.
- II) Some details concerning the reaction kinetics of isotope exchange:
  - a) General problems,
  - b) On the kinetic equation of the isotope reaction.
  - c) Limits of the applicability of the kinetic equation of first order.

There are 2 figures, 5 tables, and 76 references, 36 of which are Slavic.

AVAILABLE: Library of Congress.

- 1. Hydrogen-Reaction
- 2. Isotope exchange-Thermodynamics

Card 2/2

USCOMM-DC-54784

AUTHORS: Varshavskiy, Ya. M., Vaysberg, S. E. 76-32-2-32/38

TITLE: On the Limits of Applicability of the First Order Kinetic Equation for Isotopic Exchange Reactions  
(O granitsakh primenimosti kineticheskogo uravneniya pervogo poryadka dlya reaktsiy izotopnogo obmena)

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1958, Vol. 32, Nr 2, pp. 454-459 (USSR).

ABSTRACT: The authors investigate the problem concerning the limits of applicability of first order equations for reactions of isotopic exchange in dependence upon the degree of deviation of the quantity  $\alpha$  (distribution coefficient of isotopes) from unity. The investigation is carried out with the example of a bimolecular reaction where any dissociation reaction intendedly is expressed by a first order equation (as its velocity is limited by the dissociation of a component), the greatest part of the association reaction, however, apparently still is bimolecular. The kinetic equation for the reaction of isotopic exchange (taking place according to bimolecular mechanism) is deduced. It is shown that this equation is one of second order and practically becomes

Card 1/3



On the Limits of Applicability of the First Order  
Kinetic Equation for Isotopic Exchange Reactions

76-32-2-32/38

a first order equation only on certain conditions. For this, one of the following three conditions is sufficient: 1. - When the coefficient of equilibrium distribution of the isotopes is close to unity. 2. - A small concentration of that component in which the accumulation of the respective isotope is measured. 3. - Small concentration of that isotope in the system the accumulation of which is measured in the respective component. It is shown that the deviation of the velocity constant of the bimolecular reaction in the isotopic exchange continuously increases from the velocity constant calculated according to the first order equation with the increase of the exchange proportion, and that it tends towards a certain maximum. This maximum is not greater than twice the minimum value corresponding to the beginning of the exchange. For a number of values of the isotopic distribution coefficient the corresponding maximum deviations are calculated which practically can occur within the range of the concentration changes of the component and of the isotopes. The extent of this deviation makes it possible to estimate the degree of non-conformity between the velocity constant and the kinetic equation of first order and to determine the limits of applicability of this equation.

Card 2/3

On the Limits of Applicability of the First Order  
Kinetic Equation for Isotopic Exchange Reactions

76-32-2-32/38

There are 2 figures, and 12 references, 5 of which are Soviet.

ASSOCIATION: Physico-chemical Institute imeni L. Ya. Karpov, Moscow  
(Fiziko-khimicheskiy institut im. L. Ya. Karpova, Moskva)

SUBMITTED: April 15, 1957.

1: Exchange reactions--Mathematical analysis

Card 3/3

5(4)

AUTHORS:

Varshavskiy, Ya. M., Vaysberg, S. E.,  
Trubitsyn, B. A.

SOV/20-122-5-23/56

TITLE:

The Equilibrium Distribution of Deuterium in Hydrogen  
Exchange With Liquid Hydrogen Chloride (Ravnovesnoye  
raspredeleniye deyteriya pri vodorodnom obmene s  
zhidkim khloristym vodorodom)

PERIODICAL:

Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 5,  
pp 831 - 833 (USSR)

ABSTRACT:

The present paper deals with the first investigation  
of the deuterium exchange in liquid hydrogen chloride;  
the isotope-equilibria in several systems which  
contain hydrogen chloride are investigated. Some  
earlier papers are first discussed. It was of  
importance, above all, to obtain a reliable value  
of the distribution coefficient  $\alpha$  of the deuterium  
for the isotopic equilibrium between hydrogen chloride  
and the aromatic C-H-bond and to compare its value  
with that of  $\alpha$  for the case of an O-H bond and an  
aliphatic C-H bond. Knowledge of these quantities

Card 1/3

The Equilibrium Distribution of Deuterium in Hydrogen  
Exchange With Liquid Hydrogen Chloride

SO7/20-122-5-25/56

is of importance also for the investigation of deuterium exchange with liquid hydrogen chloride at present being carried out by the authors. The authors investigated the equilibrium distribution between hydrogen chloride and benzene, cyclopentane, and also water. These investigations were carried out on liquid-phase systems under pressure. After the establishment of equilibrium, the liquid hydrogen was vaporized and the water obtained by neutralization was then investigated with respect to its deuterium content. The carrying out of measurements is discussed in short. In isotope-exchange, equilibrium was attained from both sides by carrying out experiments with direct and inverse exchange. The tests concerning isotope exchange in hydrocarbons were carried out with an aluminum-chloride catalysis. The data thus obtained are compiled in a table. They permit the following conclusion to be drawn: At one and the same temperature the values obtained for the isotope

Card 2/3

The Equilibrium Distribution of Deuterium in Hydrogen      SOV/20-122-5-25/56  
Exchange With Liquid Hydrogen Chloride

exchange of hydrogen chloride with compounds containing an O-H bond and also an aromatic or aliphatic O-H bond are found to agree in practice. The hydrogen exchange (in the presence of  $\text{AlCl}_3$ ) between liquid hydrogen chloride and a saturated hydrocarbon that contains no third carbon atom is of special interest. Liquid hydrogen chloride is suited for the investigation of the suitability of organic compounds for the reactions of electrophile substitution by the method of deuterium exchange. There are 1 figure and 12 references, 9 of which are Soviet.

ASSOCIATION: Fiziko-khimicheskiy institut im.L.Ya.Karpova (Physico-Chemical Institute imeni L.Ya.Karpov)  
PRESENTED: June 9, 1958, by V.A.Kargin, Academician  
SUBMITTED: June 9, 1958

Card 3/3

SAVIN, A.G.; VAYSBERG, S.E.; KARPOV, V.L.; TIKHOMIROVA, N.S.

Diffusion of gases in polymers being subjected to ionizing radiation.  
Vysokom. soed. 7 no.8:1427-1429 Ag '65. (MIRA 18:9)

1. Fiziko-khimicheskiy institut imeni L.Ya.Kerpova AN SSSR, Moskva.

VAYSBERG, S.E.; VARSHAVSKIY, Ya.M.

Dual-temperature hydrogen isotope exchange between a gas-vapor mixture and a solution of the gas. Zhur.fiz.khim. 37 no.1:87-93  
Ja '63. (MIRA 17:3)

1. Fiziko-khimicheskiy institut imeni L.Ya.Karpova.

VAYSBERG, S.E.; VARSHAVSKIY, Ya.M.

Di-temperature deuterium exchange in the system water-hydrogen chloride. Zhur.fiz.khim. 37 no.2:307-309 1963. (MIRA 16:5)

1. Fiziko-khimicheskiy institut imeni L.Ya. Karpova.  
(Hydrochloric acid) (Water) (Deuterium)



29825

S/020/61/140/006/024/030

B107/B101

5.2430

AUTHORS: Varshavskiy, Ya. M., and Vaysberg, S. E.

TITLE: Equilibrium distribution of tritium in isotopic exchange of hydrogen

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 140, no. 6, 1961, 1361-1363

TEXT: Data for calculating the equilibrium constants and the distribution ratio protium - tritium by the method by Urey (Ref. 1, see below), Bigeleisen - Mayer (Ref. 2, see below) and V. M. Tatevskiy (ZhFKh, 25, 261 (1951)) are not available up to date. The present work gives a method for calculating roughly the distribution ratio protium - tritium by means of the so-called  $\beta$  factors. These  $\beta$  factors (Ya. M. Varshavskiy, S. E. Vaysberg, Usp. khim., 29, 1434 (1957)) are a quantitative measure for the thermodynamic inequality of two isotopes of an element in a certain substance. In first approximation, they depend only on the number of outside electrons and occupied electron shells. Thus the  $\beta$  factors of  $\text{CH}_4$ ,  $\text{NH}_3$ , and  $\text{H}_2\text{O}$  are all about equal to the  $\beta$ -factor of HF. The  $\beta$  factors for the tritium - protium exchange in diatomic hydrides (including free radicals) may be calculated

Card 1/2

27825

S/020/61/140/006/024/030  
B107/B101

Equilibrium distribution of...

from the vibration frequencies of the hydride ( $\nu_H$ ) and the tritide ( $\nu_T$ ):

$$\beta = (\nu_T/\nu_H) \left\{ [1 - \exp(hc\nu_H/kT)] / [1 - \exp(-hc\nu_T/kT)] \right\} \exp[(-hc/2kT)(\nu_H - \nu_T)].$$

The  $\beta$  factors for the tritium - protium exchange at 20°C are listed in Table 1 and represented as function of the atomic number in Fig. 1. Table 2 gives the calculated distribution ratios at 20°C. ( $\alpha = \beta_1/\beta_2$ ). There are

1 figure, 2 tables, and 9 references: 6 Soviet and 3 non-Soviet. The three references to English-language publications read as follows: Ref.1: H. C. Urey, J. Chem. Soc., 1947, 562; Ref.2: J. Bigeleisen, M. Mayer, J. Chem. Phys., 15, 261 (1947); Ref. 8: P. Stats, H. Morgan, J. Goldstein, J. Chem. Phys., 24, 916 (1956). ✓

ASSOCIATION: Institut radiatsionnoy i fiziko-khimicheskoy biologii Akademii nauk SSSR (Institute of Radiation- and Physicochemical Biology of the Academy of Sciences USSR)

PRESENTED: May 23, 1961, by A. N. Frumkin, Academician

SUBMITTED: May 23, 1961  
Card 2/82

VARSHAVSKIY, Ya.M., doktor khimicheskikh nauk; VAYSBERG, S.E., kand.  
khimicheskikh nauk

Present-day methods for producing heavy water. Khim.nauka i prom.  
4 m.4:498-509 '59. (MIRA 13:8)  
(Deuterium oxide)

PALETSKIY, G.V.; DANCHENKO, B.K.; CHERNYAYEV, A.F.; ZAGRANICHNOV, G.A.;  
VAYSBERG, S.M.; YERISKIN, K.I.

Decreasing the distance between electrodes in electrolyzers.  
Prom.energ. 15 no.3:20 Mr '60. (MIRA 13:6)  
(Electrolysis) (Hydrogen)

ACCESSION NO. AFS 000978

16

157

6/5.01:23

4/11

**"APPROVED FOR RELEASE: 08/31/2001**

**CIA-RDP86-00513R001859120018-6**

**APPROVED FOR RELEASE: 08/31/2001**

**CIA-RDP86-00513R001859120018-6"**

BAKLAYEV, Ya.P.; OVCHINNIKOV, L.N., prof., doktor geol.-min.nauk, otv.  
red.; VAYSBERG, S.I., red.; IZMODEKOVA, L.A., tekhn.red.

[Geology and potential of the Tur'insk contact-metasomatic de-  
posits of copper in the northern Urals] Geologicheskoe stroenie i  
perspektivy Tur'inskikh kontaktovo-metasomaticheskikh mestorozh-  
denii medi na severnom Urale. Sverdlovsk, 1959. 141 p.  
(Akademiia nauk SSSR. Ural'skii filial, Sverdlovsk. Gorno-  
geologicheskii institut. Trudy, no.37) (MIRA 13:2)  
(Tur'insk region--geology)

S/076/63/037/002/006/018  
B101/B186

AUTHORS: Vaysberg, S. E., Varshavskiy, Ya. M. (Moscow)

TITLE: Investigation of the two-temperature exchange of deuterium in the system water - hydrogen chloride

PERIODICAL: Zhurnal fizicheskoy khimii, v. 37, no. 2, 1963, 307-309

TEXT: It was sought to determine efficiency of two-temperature columns, which is important for the concentration of deuterium, and to compare it with that of rectification. For this purpose, di-temperature isotopic separation of hydrogen was effected in counter-current columns in the system hydrochloric acid - gas-vapor mixture of hydrogen chloride and water. The deuterium content of the water was 0.65 at%, that of the hydrochloric acid 0.61 at%. Results: The two-component state of the phases may lead to a shift in the enrichment peak to beyond the current ratio  $\lambda$ , equal to the partition factor  $\alpha$  of deuterium. Maximum enrichment in the given system at column temperatures of  $t = 17^{\circ}\text{C}$  and  $t' = 90^{\circ}\text{C}$  corresponded to  $\lambda = 2.7-2.9$ , whereas  $\alpha_{17^{\circ}\text{C}} = 2.53$ . The ratio  $\psi$  between the HET on rectification of water and the HET on di-temperature isotopic exchange has Card 1/2



Investigation of the two-temperature ...

S/076/63/037/002/006/018  
B101/B186

been found equal to 0.4. There are 1 figure and 1 table.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova  
(Physicochemical Institute imeni L. Ya. Karpov)

SUBMITTED: August 17, 1961

Card 2/2

BICHKOVA, K.I. [Bychkova, K.I.], kand.med.nauk; VAYSBERG, S.Ya. [Vaisberh, S.IA.], kand.med.nauk

Functional changes under the influence of antiallergic actions in hemorrhagic syndromes in children. Ped., akush. i gin. 23 no.6: 31 '61. (MIRA 15:4)

1. Kafedra pediatrii Donetskogo meditsinskogo instituta.  
(HEMOPHILIA)

L 19692-65 FBD/FSF(h)/EWI(1)/EWG(v)/EEC-4/ERC(t) Pe-5/Pae-2/Pi-4

AUTHOR: Bazelyan, L. L.; Braude, S. Ya. (Corresponding member AN  
UkrSSR); Vayenberg, V. V.; Kryukin, V. V.; Men', A. V.; Sodin, L. G.

Card 1/2



BRAUDE, S. Ya.; VAZBET, V.V.

Distribution of thermal and nonthermal radiation components over  
the galactic disc. Izv. vys. ucheb. zav. radiofiz. 7 no.2:193-201  
'64 (MIRA 18:1)

1. Institut radiofiziki i elektroniki AN UkrSSR.

MAZURAN, L.I.; DEKADZE, S.M.; VANDERBERG, V.V.; ARKIZON, Y.V., MEN'KOV,  
SODIN I.S.

Study of the spectra of anisotropic cosmic radio emission sources at  
frequencies below 10 Mc. Izv. Akad. Nauk, ser. fiz. 42 no.15512-628 My. 1955.  
(MIRA 18:5)

1. Institut radiofiziki i elektroniki AN UzbSSR.

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Card 2/3

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L 58385-65

ACCESSION NR: AP5015584

pattern was  $1.6^\circ$  for 20 Mc and  $0.8^\circ$  for 40 Mc. Beam declination along the meridian was regulated by remote-control delay lines. The telescope radiometers were phase modulated by phase shifting the signal from the antennas through a phase shifter at a frequency of 60 cps. The signals of each antenna were amplified by preamplifiers. The passband of the preamplifiers and of the phase shifter was about 20 Mc. The calibration was made by the standard signal generator and a calibrated attenuator and a splitter. The results of the measurements are given in the tables and figures. The results of the measurements are given in the tables and figures.

a constant spectral index from 20 to 1400—3200 Mc (13 sources) and spectra with a spectral index which is a function of the frequency (5 sources). Orig. art. has: 3 figures and 2 tables. [DW]

ASSOCIATION: Institut radiofiziki i elektroniki Akademii nauk UkrSSR (Institute of Radio Physics and Electronics, Academy of Sciences, USSR)

Card 2/4

L 59395-65  
ACCESSION NR: AP5C15584

NO BPF 50V

NO BPF 4A 1

ADD 170000 4040

Card 3/4

Table 1. Flux densities and mean expected errors for 14 discrete sources

Frequency MHz	20	25	31	38.5	38	38
Source	S 1913 5	S 1913 5	S 1913 5	S 1913 5	S 1913 5	S 1913 5
Flux Density	4.5	4.5	4.5	4.5	4.5	4.5

Card

VAYSBERG, Ya.D.

Horizontal spaces between underground utility installations.  
Stroi. truboprov. 8 no.3:15-17 Mr '63. (MIRA 16:5)

1. Nachal'nik tekhnicheskogo otdela instituta Lengiproinzhproyekt,  
Leningrad.

(Pipelines)

YAKOVLEV, A.T.; VAYSBERG, Ya.D.; GORSHKOV, V.A., red.

[Designing city gas mains] Proektirovanie gorodskikh  
gazoprovodov. Moskva, Izd-vo M-va kommun.khoz.  
RSFSR, 1963. 163 p. (MIRA 17:6)

VAYSBERG, Ya.D. [deceased]

Giving up the hydraulic testing of gas pipelines after their  
placement on supports. Stroi. truboprov. 9 no.6:36-37 Je '64.  
(MIRA 17:12)

1. Lergiproinzhproyekt, Leningrad.



5

21

**Photo-Electric Method, of Determining Vanadium in Steel.**  
A. L. Davydov and Z. M. Vaysberg. (Zavodskaya Laboratoriya, 1940, No. 7, pp. 715-723). (In Russian). A detailed study was made of the conditions under which the formation of the phospho-vanadium molybdate and phospho-vanadium tungstate complexes reduced with stannous chloride could be used for the determination of vanadium. A method based on the formation of the latter complex was developed and was found suitable for the determination of vanadium contents of 0.1% to 2% with an accuracy of 4% of the amount being determined. The time taken varied from 18 to 30 min. depending on the time required to dissolve the sample. A light filter with maximum transmissibility at 550 mμ is used. 0.1-0.8% of titanium, 0.1-0.6% of copper, 0.03-0.2% of arsenic and 0.1-0.8% of molybdenum do not interfere. 1.5% of cobalt, 0.1-5% of nickel and 1-3% of chromium have practically no effect. In the presence of larger amounts of chromium its effect on the colour of the reduced solution is determined in a blank test.

ASTM-51A METALLURGICAL LITERATURE CLASSIFICATION

147080	147081	147082	147083	147084	147085	147086	147087	147088	147089	147090	147091	147092	147093	147094	147095	147096	147097	147098	147099	147100	147101	147102	147103	147104	147105	147106	147107	147108	147109	147110	147111	147112	147113	147114	147115	147116	147117	147118	147119	147120	147121	147122	147123	147124	147125	147126	147127	147128	147129	147130	147131	147132	147133	147134	147135	147136	147137	147138	147139	147140	147141	147142	147143	147144	147145	147146	147147	147148	147149	147150	147151	147152	147153	147154	147155	147156	147157	147158	147159	147160	147161	147162	147163	147164	147165	147166	147167	147168	147169	147170	147171	147172	147173	147174	147175	147176	147177	147178	147179	147180	147181	147182	147183	147184	147185	147186	147187	147188	147189	147190	147191	147192	147193	147194	147195	147196	147197	147198	147199	147200	147201	147202	147203	147204	147205	147206	147207	147208	147209	147210	147211	147212	147213	147214	147215	147216	147217	147218	147219	147220	147221	147222	147223	147224	147225	147226	147227	147228	147229	147230	147231	147232	147233	147234	147235	147236	147237	147238	147239	147240	147241	147242	147243	147244	147245	147246	147247	147248	147249	147250	147251	147252	147253	147254	147255	147256	147257	147258	147259	147260	147261	147262	147263	147264	147265	147266	147267	147268	147269	147270	147271	147272	147273	147274	147275	147276	147277	147278	147279	147280	147281	147282	147283	147284	147285	147286	147287	147288	147289	147290	147291	147292	147293	147294	147295	147296	147297	147298	147299	147300	147301	147302	147303	147304	147305	147306	147307	147308	147309	147310	147311	147312	147313	147314	147315	147316	147317	147318	147319	147320	147321	147322	147323	147324	147325	147326	147327	147328	147329	147330	147331	147332	147333	147334	147335	147336	147337	147338	147339	147340	147341	147342	147343	147344	147345	147346	147347	147348	147349	147350	147351	147352	147353	147354	147355	147356	147357	147358	147359	147360	147361	147362	147363	147364	147365	147366	147367	147368	147369	147370	147371	147372	147373	147374	147375	147376	147377	147378	147379	147380	147381	147382	147383	147384	147385	147386	147387	147388	147389	147390	147391	147392	147393	147394	147395	147396	147397	147398	147399	147400	147401	147402	147403	147404	147405	147406	147407	147408	147409	147410	147411	147412	147413	147414	147415	147416	147417	147418	147419	147420	147421	147422	147423	147424	147425	147426	147427	147428	147429	147430	147431	147432	147433	147434	147435	147436	147437	147438	147439	147440	147441	147442	147443	147444	147445	147446	147447	147448	147449	147450	147451	147452	147453	147454	147455	147456	147457	147458	147459	147460	147461	147462	147463	147464	147465	147466	147467	147468	147469	147470	147471	147472	147473	147474	147475	147476	147477	147478	147479	147480	147481	147482	147483	147484	147485	147486	147487	147488	147489	147490	147491	147492	147493	147494	147495	147496	147497	147498	147499	147500	147501	147502	147503	147504	147505	147506	147507	147508	147509	147510	147511	147512	147513	147514	147515	147516	147517	147518	147519	147520	147521	147522	147523	147524	147525	147526	147527	147528	147529	147530	147531	147532	147533	147534	147535	147536	147537	147538	147539	147540	147541	147542	147543	147544	147545	147546	147547	147548	147549	147550	147551	147552	147553	147554	147555	147556	147557	147558	147559	147560	147561	147562	147563	147564	147565	147566	147567	147568	147569	147570	147571	147572	147573	147574	147575	147576	147577	147578	147579	147580	147581	147582	147583	147584	147585	147586	147587	147588	147589	147590	147591	147592	147593	147594	147595	147596	147597	147598	147599	147600	147601	147602	147603	147604	147605	147606	147607	147608	147609	147610	147611	147612	147613	147614	147615	147616	147617	147618	147619	147620	147621	147622	147623	147624	147625	147626	147627	147628	147629	147630	147631	147632	147633	147634	147635	147636	147637	147638	147639	147640	147641	147642	147643	147644	147645	147646	147647	147648	147649	147650	147651	147652	147653	147654	147655	147656	147657	147658	147659	147660	147661	147662	147663	147664	147665	147666	147667	147668	147669	147670	147671	147672	147673	147674	147675	147676	147677	147678	147679	147680	147681	147682	147683	147684	147685	147686	147687	147688	147689	147690	147691	147692	147693	147694	147695	147696	147697	147698	147699	147700	147701	147702	147703	147704	147705	147706	147707	147708	147709	147710	147711	147712	147713	147714	147715	147716	147717	147718	147719	147720	147721	147722	147723	147724	147725	147726	147727	147728	147729	147730	147731	147732	147733	147734	147735	147736	147737	147738	147739	147740	147741	147742	147743	147744	147745	147746	147747	147748	147749	147750	147751	147752	147753	147754	147755	147756	147757	147758	147759	147760	147761	147762	147763	147764	147765	147766	147767	147768	147769	147770	147771	147772	147773	147774	147775	147776	147777	147778	147779	147780	147781	147782	147783	147784	147785	147786	147787	147788	147789	147790	147791	147792	147793	14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COMMON ELEMENTS		COMMON VARIABLE INDEX	
<p>CA</p>		<p>7</p>	
<p><b>PROCESSING AND PROPERTIES</b></p> <p>A photoelectric method for the determination of vanadium in ores. Z. M. Valsberg and A. I. Davydov. <i>Zhurnal Khim. Fiz.</i> 11:352-3 (1945). The method is based on the formation of phospho-tungstic-molybdic complex and its reduction with <math>\text{SnCl}_2</math>. It can be used to det. V in ores contg. 0.02-0.2% of V in the presence of Cr, Ni, Ti, Cu, As, Mo (up to 1%) without their preliminary sepn. Fuse 1 g. of the ore in an Fe crucible with a 7-fold quantity of <math>\text{Na}_2\text{O}</math>, ext. the melt in a small vol. of water, and add 30 ml. of 18 N <math>\text{H}_2\text{SO}_4</math>. To dissolve <math>\text{MnO}_2</math>, add a little 3 N <math>\text{HCl}</math>. Add 8 ml. of 7.5 N <math>\text{HNO}_3</math>, evap. to 70-80 ml., cool, transfer to a 100-ml. measuring flask, add water to the mark, and mix carefully. Add 8 ml. of <math>\text{H}_2\text{O}_2</math> (1.7) to 20 ml. of the soln. in a 100-ml. Brlenmeyer flask, heat to boiling, add 9 ml. of 5% <math>\text{Na}_2\text{WO}_4 \cdot 2\text{H}_2\text{O}</math>, heat to 92-5°, let the soln. stand for 2 min. Cool, add 1 ml. of 0.5% <math>\text{SnCl}_2</math>, transfer to a 50-ml. measuring flask, dil. with water to the mark, mix, and det. the intensity of the color in a 30-mm. layer of the soln. with a yellow-green light filter, and det. V by means of a calibration curve. For samples with less than 0.1% of V better results are obtained by using the photoelec. method. Five references. W. R. Henn</p>			
<p><b>ASSOCIATE METALLURGICAL LITERATURE CLASSIFICATION</b></p>			
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<p>Photocolorimetric determination of some opium alkaloids. I. Determining morphine. Z. M. Valsberg, Ya. A. Malkov, and B. G. Khizman. <i>Formulirov. No. 4, 18-20(1946).</i>—Reactions of morphine with <math>K_4Fe(CN)_6</math> and with <math>FeCl_3</math> were studied. Both reagents lack accuracy and specificity. Molybdosilicic acid permits sensitive, accurate photocolorimetric assays even in the presence of various other drugs, including the other opium alkaloids. The procedure is described. J. P. Smith</p>																																																																													
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<p>Photocolorimetric determination of some opium alkaloids. II. Determining codeine and narcine. Z. M. Vaisberg, Ya. A. Fialkov, and E. G. Khizman. <i>Farml'siya</i> 10, No. 1, 26-30 (1947); cf. C.A. 41, 7053a. — Four concn. factors (Br, Na<sub>2</sub>SO<sub>4</sub>, NH<sub>4</sub>OH, and HCl) and the temp. factor were studied in the photocolorimetric detn. of codeine (I) by bromination. Preferred conditions, with I at 1 g./l., are: 5 ml. I soln., dild. to 10 ml.; 0.5 ml. HCl (conc. HCl dild. 12:1, then 10:1); 1 ml. satd. (15-20°) Br water; after 5 min. 1 ml. excess Na<sub>2</sub>SO<sub>4</sub> (0.4 g. in 100 cc. H<sub>2</sub>O) above decolorization end point; after boiling and cooling, 0.5 ml. 25% NH<sub>4</sub>OH. Observed errors range from -1 to 3%. Presence of other opium alkaloids impairs accuracy; lactose and aspirin do not interfere. For narcine (II) the preferred conditions are: 1 mg. hydrochloride, dild. from initial 5 ml. to 7 ml.; 0.5 ml. HCl (as for I); 0.5 ml. satd. Br water; after 5 min., 1.5 ml. Na<sub>2</sub>SO<sub>4</sub> (as for I); after 3 min. at 50°, 0.2 ml. 2.5% NH<sub>4</sub>OH. This detn. of II is accurate to within 3%. The colorimetric standards were made up from known solns. of I and II and examd. in a layer 15 mm. thick against a blue filter. Julia: F. Smith</p>																													
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